Yorkshire Philosophical Society.

ANNUAL REPORT

FOR

MDCCCXCIII.

BRITISH MUSEUM NATURAL HISTORY

ANNUAL REPORT

OF THE COUNCIL

OF THE

YORKSHIRE PHILOSOPHICAL SOCIETY

FOR

MDCCCXCIII.

PRESENTED TO THE ANNUAL MEETING,

FEBRUARY 6th, 1894.

BRITISH MUSEUM NATURAL HISTORY

YORK:
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1894.

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OF

THE YORKSHIRE MUSEUM.

APPOINTED BY ROYAL GRANT.

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WILLIAM LAWTON.
T. S. NOBLE.
S. W. NORTH.
REV. CANON RAINE, D.C.L.
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OF THE

Yorkshire Philosophical Society.

HER MAJESTY THE QUEEN.
H. R. H. THE PRINCESS OF WALES.

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H. R. H. THE PRINCE OF WALES, K.G.
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The Rev. Canon Raine, D.C.L.
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KEEPER OF THE MUSEUM.

Henry Maurice Platnauer, A.R.S.M., B.Sc.

REPORT OF THE COUNCIL

OF THE

YORKSHIRE PHILOSOPHICAL SOCIETY,

FEBRUARY 6TH, 1894.

The Council, in presenting their Annual Report for the year 1893, congratulate the members on the prospects of the Society, and of the Sciences which it was founded to promote.

In reports of annual recurrence much variety cannot be expected, and the rule hitherto adopted will be followed on the present occasion; first, briefly to state the present condition of the Finances, and then to deal with the various departments of Science as set forth in the reports of the respective Curators. The Balance Sheet, as audited, will be laid upon the table and will be more particularly referred to by the Treasurer after the Report has been read.

The total income of the Society for the past year is £1,114 14s. 7d., and the expenditure for the year, by one of those strange freaks in figures, is within 1s. of the same amount.

The shilling, however, is on the right side, and that amount represents the excess of income over expenditure.

The Gate money for the past year amounts to the sum of £225 18s. 4d., whilst in the previous year the Society realised £232 5s. 2d. from that source, leaving a balance of £6 6s. 10d. in favour of the previous year. The receipts from subscribing Members, including County Members, Lady Subscribers, and Associates, and sums paid for Keys of the Gates amount to the sum of £703. These two sums form the principal items of income, and the other receipts call for no particular comment as these are much the same as in previous years. The outgoings will be read from the Balance Sheet by the Treasurer. There is only one item which specially requires notice, that is a sum of £40 8s. 0d. paid for antiquities, which will be found to be fully justified when the report referring to the Antiquarian Department is read. The Council cannot let the opportunity pass without expressing their obligations to the Rev. Canon Raine for the care and attention he has given to this department, and the valuable additions which have been made to it by his foresight and zeal.

The Report will now deal with the various departments of Science under the charge of the Council.

ANTIQUARIAN DEPARTMENT.—The progress of the Antiquarian Department during the past year has been eminently satisfactory. The new Drainage Works have indeed disclosed no Roman inscriptions which were anxiously looked for, but they have revealed memorials of the Roman occupation which are of the greatest interest. The North Road has been discovered in Duncombe Place and Petergate, the foundations of the gateway at Bootham Bar have been uncovered, and the road has been traced down Bootham in the direction of Clifton. But we know now for the first time that the road diverged to the left before it reached St. Peter's School to avoid Clifton, which must then have been under water, and crossed the ravine near Mr. Teasdale's house, in Park Grove Avenue, on a high level Bridge, which carried it over to Clifton Croft on the other side. It passed under Mr. Melrose's house, Clifton Croft, and was discovered in the Road behind, leading to Clifton Scope, bearing towards the North Riding Asylum, and with a width of at least 24 feet. The excavations in North Street and Tanner's Moat have also been most interesting. Remains of various Roman buildings were found with masses of the strongest stonework which must have formed the head on that side of the water of the great Roman Bridge which crossed the River opposite to the Mansion House. All through North Street and Rougier Street, at a depth of between 20 and 30 feet, many fragments of Samian Ware and of other Roman Pottery, with ornaments, &c., were discovered, which have now found a home in our Museum. These curiosities of themselves would have made the past year a conspicuous one to the Society, but other additions have been made which sensibly mark the great progress of our collections. We are indebted to Mrs. Lund, the widow of Mr. John Lund, sometime of Scarborough and York, for the gift of her husband's very extensive and valuable cabinet of coins. It extends to some thousands of specimens, chiefly English and Roman, and is the largest gift which the numismatic portion of our Curiosities has received for a very long series of years. From Mr. Eugene Bean, of the Yorkshire Bank in this City, the Society has also received his choice series of Roman and other antiquities discovered in York, which adds largely to the treasures stored already in the Hospitium. The only other accession which it is necessary to mention is a selection from the Museum of the late Mr. Thomas Bateman, of Youlgrave in Derbyshire, which was recently dispersed in London. The Society was fortunately able to purchase nearly the whole of his collection of Old English Pottery, which was gathered together for him in York by the late Mr. Robert Cook. It is needless to say how valuable to us in York such specimens are. Mr. Bateman also acquired numerous Roman antiquities disinterred in or about York, but these, together with his prehistoric remains from Yorkshire and Derbyshire, have found a home, by private arrangement, in the Sheffield Museum.

Geology.—The Curator of Geology reports that during the past year the collection of Jurassic Brachiopoda has been revised, and several additional specimens have been added to it, but he considered that it was not advisable to alter the old generic names of these to the new subgenera as the new nomenclature is not yet settled.

A series of bones of the Ox and Horse, from the bed of the River Wiske, has been presented by Mr. Hutton.

S. Chadwick, F.G.S., has kindly presented to the Society very fine specimens of the interesting fossil *Solenopora jurassica* from the Lower Calcareous Grit of Ruston, near Hutton Bushell.

Mineralogy.—The Honorary Curator in Mineralogy reports that no work has been done in their department beyond the incorporating of a few new specimens. The most important additions to the collection of minerals are some zeolites, chiefly from Faroe, presented by Miss Birley, and some crystals obtained from the final diamond washings of the Kimberley mine, presented by Major Barstow. Several additions have been made to the rock collection—chiefly igneous rocks.

REPORT OF CONCHOLOGICAL DEPARTMENT.—The only addition to the collections which the Honorary Curator has to report is a small series of Land and Freshwater shells from Kashmir. These shells, especially the Fluviatile species, are very closely related to, and in some cases identical with, British species; affording one among many proofs of the Zoological unity of the great Palæarctic Province.

It is gratifying to observe that *Paludina contecta* has been met with in several localities in south Yorkshire. This species once occurred near Fulford, but has long been extinct in the neighbourhood of York, and it was feared that the shell had ceased altogether to exist in this country, where it reaches the northern limit of its distribution.

The Honorary Curator, since residing at Ayton, has investigated the molluscan fauna of that district. In addition to 24 terrestrial species discovered which are common also to the York district, 15 others have occurred (not including the slugs). The most interesting among these are *Helix fusca*, *H. sericea*, *Hyalina pura*, *Vertigo pusilla*, *Cyclostoma elegans*, and *Acme fusca*. The river Derwent yields the somewhat scarce variety of *Limnea auricularia* known as *acuta*.

DEPARTMENT OF ENTOMOLOGY.—The Honorary Curator reports that the Allis collection of Lepidoptera, the Hey collection of Coleoptera and the collections in general are in good order and preservation.

An excellent economic series of insects, arranged and set up by Mr. Mosley, of Huddersfield, has been presented by the Honorary Curator. This series consists of insects useful or injurious to man; the latter arranged according to the substances that they injure.

In addition to this, a series of preparations has been made to serve the ordinary visitor as an introduction to the study of Entomology. To effect this object, full and explanatory labels have been attached to the specimens worded as plainly as possible and with the meaning of all technical terms used given in simple language. The series briefly illustrates the structure, classification and life history of insects.

Your Honorary Curator designs arranging the whole systematic part of the collection in the same way. The number of specimens exhibited may have to be reduced, but representative forms will be selected for exhibition and these will be accompanied by full and descriptive labels.

BOTANY, 1893—

Phanerogamous Plants.—During the past year (1893) the specimens of British sedges (N.O. *Cyperaceæ*) have been arranged, and are now available for inspection and study.

The difficult genus Carex is well represented in the collection, by the contributions of Teesdale, Dalton, Middleton, and Hailstone (1790-1840), also by donations of the late Dr. Spruce, O. A. Moore, Ibbotson, Wilkinson, and Walker.

Many of the specimens in this order represent the oldest records for the County (Yorkshire), and in this respect your collection is unique.

About 1600 species (embracing 6000 specimens) of British Phanerogams require to be mounted and arranged before an authentic catalogue can be issued to the members. As this will involve much labour and time, it has been suggested that your Honorary Curator should give an account of the work already done in connection with the Herbarium, so that those members who are interested in this branch of Natural History may have facilities for receiving or imparting information on the subject.

Cryptogamous Plants.—The Legard collection of Algæ is in good condition.

Lichens.—The Dalton collection is incomplete.

The British Musci and Hepaticæ are not represented in the collection.

PHOTOGRAPHIC SECTION.—The number of members and general attendance at meetings of this section have been well maintained during the past year. The general every-day work done by various members of the section is scarcely of a character to be appreciated in a report, but must be inspected. As in previous years, an exhibition of photographic work done by the members was held in the Museum on the 7th and 8th December, 1893, thus giving the members of the Yorkshire Philosophical Society generally an opportunity of judging for themselves of the quality of the work carried on by this special section. A few eminent amateur and professional photographers very kindly lent a considerable number of their photographs to this local exhibition. The great pictorial merits and scientific value of these were highly appreciated and added largely to the success of the conversazione. The exhibition of lantern slides given by the photographic section in March was very highly appreciated, judging from the very crowded condition of the Lecture Theatre on that night. The section has certainly every encouragement for repeating these exhibitions of transparency work in the future.

The council have pleasure in announcing that in accordance with the powers conferred on them by section vii. of the rules, they have approved a scheme by which persons not members or associates of the Philosophical Society may be admitted to the meetings of the photographic section only, on payment of a small annual subscription.

COMPARATIVE ANATOMY.—The only addition made to this department consists of a skeleton of the Otter (*Lutra vulgaris*) prepared from a carcase purchased by the Society.

Dr. Jonathan Hutchinson has called attention to the fact that a lion's skeleton in our collection shews the results of *Periostitis*. This disease, a rare one in animals, was believed to be confined to the domestic dog until it was observed some little time since in the skeleton of a lion in the Dublin Museum. The latter was the skeleton of a menagerie-kept lion, and therefore the case is practically that of a domestic animal. It would be a matter of great interest to know whether our skeleton is that of a wild animal or not. Unfortunately the history of this skeleton has been lost.

In the ORNITHOLOGICAL DEPARTMENT, the most important additions have been made through the kindness of the Rev. Canon Raine and Dr. Tempest Anderson.

From the former gentleman we have received a fine example of *Stercorarius parasiticus*, Linn. (Buffon's Skua) an adult bird shot in Bridlington Bay, on September 26th, 1893.

From Dr. Anderson we have received a skin of an adult Great Northern Diver from Iceland, along with a considerable number of Eggs (mostly Ducks') likewise from Iceland, and all taken during the season just past.

As in previous years, a few fresh cases have been added to the new British Bird collection, but some half-dozen more are yet required to fill the Gallery.

METEOROLOGY.—In contrast to 1892 the past year is notable as the warmest since 1868, the *temperature* being in excess in every month except January. In March the excess was as much as 4·65° and in April, May, and August, it exceeded 3°. This was due to the unusual amount of sunshine, as the excess depends almost entirely upon the maxima. The year's mean (49 5° for the mean of the maxima and minima) is 1·8° above the 50 years' mean, a value only twice exceeded, namely, by the record of 50·0° in 1846, and 49·9° in 1868. Two other years, 1863 and 1884, were equally warm; the latter was, indeed, decidedly warmer when tested by the means for 9 a.m. and 9 p.m. This follows from the high value of 1893 being caused by high maxima. The mean 57·5 is indeed higher than any of our records, the nearest being 57·1 in 1846. The mean of the minima is only half a degree above the average. The three summer months each gave absolute maxima considerably above 80, the highest, 85·3 on July 9th, being 7·1° higher than last year. 80° or above was recorded three times in June (19-21) in July (2, 8, 9) and five times in August (8, 14, 15, 17, 18) or eleven times in all. The extreme range, 78·3, is the most since 1881 (82·2°), being exceeded only twice besides, in 1873 (79°) and 1854 (82·5°).

The maximum in March (68°) is slightly higher than our previous records, though not more than a degree above those for 1841, 1884, and 1892. The mean max., 55·5°, is over a degree higher than the previous record—54·3 in 1841. Details will be found elsewhere. The April maximum (76°) was just equalled in 1869; but the mean (61·1°) exceeds by 0·7 that of 1844. Perhaps most remarkable were the two weeks from August 7-21, including the five maxima over 80, the average maxima being 77·2, while the 6 p.m. values averaged 71·9°. On the 18th, the hottest day, a dense cloud gathered over York at 12 o'clock, when the rise was checked. At Driffield a maximum of 90° was reached (Mr. J. Lovel, F.M.S., observations) between one and two p.m. Frosts were frequent up to mid-April, and in November.

Mean pressure varied little from the average; the range was 2·10 inches. Minima below 29 inches occurred in three months. The most serious consequence was the storm of November 17th, associated with a violent easterly gale and snow, and resulting in the loss of at least 300 lives. Exposed windows showed signs of salt spray.

The excess of *bright sunshine* (the total, 1595 hours, being 372½ hours above the mean) was divided among all the months except January. Its deficiency of 4½ hours was made up in the next month, whilst March and October had 50°/₀ of the ordinary amount and April almost double. This month actually gave 57°/₀ of the possible amount, the nearest approach to which, in any month, was for May, in 1881 and 1882, when 54°/₀ and 55°/₀ were reached. The actual hours were exceeded in those years. The August total and percentage likewise exceed any previous records for that month. The same is true of March, September, and October; the last month had not previously exceeded 100 hours.

Rain or Snow, to an amount exceeding ·005 inch of water, fell on 165 days, or 5 less than the average. The total fall was 2½ inches below the mean, although as many months were above as below. The chief deficiency was in March, April, and June, especially in the two former months, when we fully shared in the drought which further south remained practically unbroken until July or even September. Thunderstorms account for several heavy falls, notably the highest for the year, on July 3rd, and a second in the same week, of 0·75 on the 9th. On this last occasion most abnormal falls of hail occurred, locally, along a belt from Boston to Richmond. The worst visitations were at Harrogate and Richmond, at, or near both of which, hundreds of thousands of panes of glass were smashed, some hailstones being five inches in diameter. Many animals, such as lambs, were killed, and a corrugated iron roof was actually pierced. Photographs of the hailstones were taken by Mr. Metcalfe, of Richmond. These show strikingly the structure of these remarkable ice masses, which do not seem to have been agglomerations of smaller stones, as there is marked concentric structure.

The cumulative totals for the three wettest months, from 1841*, are August, 144·15; October, 141·14; July, 140·87; next comes September, 123·90.

Four *Floods* of seven feet and more occurred, namely, 7ft. 8ins., on February 11th; 7ft. 10ft., on the 15th; 12ft. 6in., on March 3rd (still 10ft. on the 5th), and 8ft. on December 14th. The water was at Summer level on 56 days, although the number would have been much larger had it not been so constantly drawn off in April, May, and August. From March 24th to September 30th the water was never more than a foot above Summer level except once in June, three times in July, and once in August. These values are taken from the daily records from the Ouse Bridge Guage, kindly supplied for so many years by Mr. Stephenson. We are for the first time able to present as well the results (from mid-August) given by the automatic recorder erected by Mr. A. Creer, the City Surveyor, at the Guildhall Offices. We have pleasure in recording this as one result of the action taken in consequence of the disastrous flood of mid-October, 1892. The City Council, with the co-operation of the North Riding County Council, has also caused guages to be erected at Richmond on the Swale and Leyburn and Ripon on the Ure, with arrangements for telegraphic despatches whenever the waters rise. These are posted by Mr. Creer upon a bulletin board outside the Guildhall, whenever the water is high.

The numbers in the column "visibility" are obtained by observations on the West Riding Hills, values of 1, 2, and 3 being assigned according as they are "visible," "clear," or

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* By a misprint the corresponding paragraph last year had 1871 for 1841.

"very clear." They were for a second time seen in December. The previous year was unusually clear, but 1893 far exceeded it. There was an excess all through the year except January, just as with the maximum thermometer and hours of bright Sunshine. The chief excess in the former year was in April and May, but this year the highest values were in September and October. The year's total, 116, is nearly treble the average.

25 *Auroras* were observed during the year; 5 in February, 1 in March, 2 in April, 3 in August, 3 in September, 5 in November, and 6 in December. This is the largest number in any year since notes were first taken in the early seventies. None, however, were specially conspicuous, only a few being accompanied by streamers.

Mock Suns were twice noted, on May 30th and October 31st, an unusually small number.

We again beg to acknowledge the kindness of several gentlemen in supplying us with the returns entered under their names in our tables. In doing this it is our sad duty to notice the death of Mr. Henry Richardson, who for so many years has supplied us with returns from Cherry Hill, York, and Cherry Bank, Ilkley.

The Society has lost by death 7 Members and 2 Lady Subscribers; 21 Members, 4 Lady Subscribers and 4 Associates have resigned during the past year: whilst 16 new Members, 5 Lady Subscribers, 1 Associate and 1 temporary Subscriber have been added to the Society's List.

The Council propose for election as New Members of Council:—Mr. R. Thompson, Mr. J. E. Clark, and Mr. H. Dennis Taylor, in the room of Mr. J. Backhouse, Mr. A. Buckle, and J. W. Proctor, who retire by rotation. The Council also recommend the re-election of Mr. C. E. Elmhirst, who was elected a member of the Council for one year at the last general meeting.

The Council recommend that the following gentlemen be elected Honorary Members of the Society:—Dr. Clifford Albutt, Regius Prof. Phys., Camb., F.R.S., Dr. Jonathan Hutchinson, LL.D., M.B., F.R.C.S., Dr. Hughlings Jackson, LL.D.,M.D.,F.R.C.P., Dr. Pfarrer Engel, Dr. Szabó (Director of the Austrian Geological Survey).

Obituary.—On the 31st December, 1893, the remains of Dr. Spruce were interred in the churchyard of Terrington, Yorkshire. The late Dr. Spruce derived much pleasure and instruction from our Herbarium, to which he made many contributions during the years 1838-1848. In 1849 he left England under the direction of the authorities at Kew, for the purpose of exploring the Amazon and its tributaries. In this expedition he was engaged fifteen years, and the results of his labour were of considerable importance to the commercial world. Owing to the destruction of the Cinchona trees in South America it was feared that the supply of this important bark would soon be exhausted. In 1860, at much personal danger and risk, Mr. Spruce procured seeds of the Cinchona and transmitted them to India. Since this period the cultivation of the Cinchona trees has been thoroughly established in India, and a supply of this valuable bark (and consequently of quinine) is thus ensured.

The following Lectures have been given in the Museum during the past year :—

Thursday, February 9th.	"English Novels," by the Rev. Canon Lowther Clarke, M.A.
,, ,, 16th.	"Some Common Defects of Sight, with Special Reference to the Public Safety," by Tempest Anderson, M.D., B.Sc.
,, ,, 23rd.	"Temporary Stars," by Dr. Ralph Copeland, F.R.S.E., F.R.A.S. (Astronomer Royal for Scotland).
,, March 2nd.	"Man's Influence on Nature." (No. III. Plant Life.) By H. M. Platnauer, B.Sc.
,, ,, 9th.	"Man's Influence on Nature." (No. IV. Animal Life). By H. M. Platnauer, B.Sc.
,, ,, 16th.	"Roman Children," by the Rev. Canon Raine, D.C.L.
,, ,, 23rd.	"Lantern Night.
,, April 6th.	"Corsica," by J. W. Barry, M.A.
,, November 2nd.	"On some Marine Animals." (Illustrated by the real objects prepared as transparent Lantern Slides.) By H. Clifton Sorby, LL.D., F.R.S.
,, ,, 9th.	"The Dialect of East Yorkshire," by the Rev. C. F. Marmaduke Morris, M.A., B.C.L.
,, ,, 16th.	"Photographic Record of the Rocks." (Illustrated by Lantern Pictures

		selected from the collection of the British Association Geological Photographs Committee.) By OSMUND W. JEFFS.
Thursday,	Nov. 23rd.	"The Diamond Fields of South Africa." (Illustrated by Lantern Pictures.) By CHARLES E. STEWART.
,,	,, 30th.	"North Iceland." (Illustrated by Lantern Pictures.) By TEMPEST ANDERSON, M.D., B.Sc.
,,	December 7th.	A Conversazione, in the Museum, 8 to 10-30 p.m.

NEW MEMBERS.

Bollans, Mrs., 1, *Grosvenor Terrace.*
Chapman, Gerald W., 5, *Micklegate.*
Coates, Mrs., *Davygate.*
Croft, Mrs., *Gillygate.*
Forbes, C. M., *New Street.*
Forbes, Andrew, *Clifton.*
Gostling, J. H., 40, *Stonegate.*
Gray, Rev. T. D., 1, *St. Mary's.*
Moon, J., 17, *St. Mary's.*
Pierce, Dr. Bedford, *The Retreat.*
Porter, Major T. C., *The Sycamores, Bootham Terrace.*
Simmons, Chas., *St. Helen's Square.*
Steel, Charles, 22, *The Mount.*
Taylor, E. M., 9, *Minster Yard.*
Yates, Mrs. F., 20, *Bootham Crescent.*
Yeld, George, *Clifton.*

NEW LADY SUBSCRIBERS.

Daniel, Mrs., *Cliff Villa, Clifton.*
Ditmas, Miss F., 3, *St. Mary's.*
Hill, Miss Edith, 14, *St. Saviour's Place.*
Iles, Mrs., *Micklegate.*
Teale, Miss, 35, *Price Street.*

NEW ASSOCIATE.

Spence, Malcolm, *Clifton.*

TEMPORARY MEMBER.

Everard, Miss E. V., 12, *St. Mary's.*

STATION, YORK.—THE MUSEUM.

Longitude 1° 5′ W., Latitude 53° 57′ N. Height above Mean Sea Level 51 feet.

1893.	Highest Barometer.	Lowest Barometer.	Mean Pressure at 32° Fahrenheit at M.S Level	Air Temperature.									Humidity.								
				9 a.m.	9 p.m	Mean.	Means of		Absolute Min. and Max.				Deprn. of Wet Bulb.			Tension of Vapour.			Percentage.		
							Min.	Max	Min.	Date.	Max.	Date.	9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
			ins.	°	°	°	°	°	°		°		°	°	°	in.	in.	in.	%	%	%
January	4th, 9 p.m. 30·456	29th, 9 a.m. 29·376	30·035	35·7	35·7	35·7	30·5	40·7	7·0	5th	53·0	23rd 30th 31st	0·9	0·9	0·9	·194	·194	·194	92	92	92
February	4th, 9 p.m. 5th, 9 a.m. 30·385	26th, 6 p.m. 28·705	29·625	39·6	39·8	39·7	35·0	45·1	25·0	28th	57·0	19th	1·2	1·3	1·3	·219	·219	·219	90	90	90
March	25th, 9 a.m. 30·467	1st, 6 p.m. 29·400	30·078	41·7	44·3	43·0	34·9	55·5	25·0	19th & 29th	68·0	25th	2·1	2·2	2·2	·221	·243	·232	85	83	84
April	8th, 9 a.m. 30·597	29th, 6 p.m. 29·802 9 p.m.	·205	47·8	45·5	46·7	37·8	61·1	29·0	12th	75·6	24th	3·7	2·8	3·3	·247	·243	·245	75	80	78
May	8th, 9 a.m. 30·489	18th, 9 a.m. 29·532	·072	55·8	52·6	54·2	44·9	64·2	37·0	11th	72·0	11th	4·4	3·0	3·7	·329	·318	·324	73	80	77
June	8th, 9 a.m. 30·422	23rd, 6 p.m. 29·221	30·012	59·4	56·7	58·1	49·6	68·5	41·0	1st	83·4	18th	4·3	3·1	3·7	·379	·371	·375	75	81	78
July	28th, 8 a.m. 30·279	20th, 8 a.m. 29·464	29·888	61·6	58·2	59·9	52·4	68·7	45·0	28th	85·3	8th	4·6	2·8	3·7	·403	·401	·402	74	82	78
August	29th, 9 a.m. 30·338	21st, 8 a.m. 29·392	·984	64·0	60·8	62·4	54·6	71·9	43·0	6th	85·0	18th	4·2	2·8	3·5	·455	·442	·449	76	83	80
September	12th, 8 a.m. 30·378	29th, 6 p.m. 29·148	·806	55·5	53·5	54·5	47·0	63·3	34·0	12th	74·0	5th	3·4	2·3	2·9	·347	·345	·346	79	84	82
October	23rd, 9 a.m. 30·418	4th, 9 a.m. 29·047	·822	48·6	48·6	48·6	42·0	57·1	27·0	31st	67·0	21st	2·2	2·0	2·1	·290	·294	·292	85	86	86
November	21st, 9 a.m. 30·521	17th, 9 a.m. 28·897	·976	41·8	41·5	41·7	34·5	48·0	26·0	5th & 23rd	56·5	4th	1·7	1·8	1·8	·229	·225	·227	87	87	87
December	29th, 9 p.m. 30·729	20th, 6 p.m. 28·797	29·890	39·8	40·9	40·4	34·9	46·2	20·0	2nd	54·0	13th	1·4	1·5	1·5	·217	·224	·221	89	88	89
Year	*Dec. 29th, 30·729 9 p.m.	†Feb. 26th, 28·705 6 p.m.	29·949	49·3	48·2	48·8	41·5	57·5	7·0	Jan. 5th.	85·3	July 8	2·8	2·2	2·5	·294	·293	·294	81·7	84·7	83·2

*30·75 at 10 p.m. †28·65 at 2 p.m.

STATION, YORK.—THE MUSEUM.

Barometer 2 feet above ground. Thermometers 4 feet 3 inches above ground. Rain-gauge 1 foot 9 inches above ground (49 feet at rim above sea-level).

1893.	Amount of Cloud.			Rainfall.			Sunshine Returns.				Weather, No. of Days of									Wind, No. of Observations of								
	9 a.m.	9 p.m.	Mean	Total.	Max.	Day	Total hours. 1893.	Per-centage 1893.	Mean Hours 1881-90.	Mean Per-centage 1881-90.	Rain, Snow, &c.	Frosts.	Snow.	Hail.	Thun-der Storms	Clear Sky	Over-cast	Gale	Visi-bility.	N.	N.E.	E.	S.E.	S.	S.W	W.	N.W	Calm
				ins.	ins.																							
January	7·2	6·3	6·8	1·31	·31	29th	21	9	25·6	10·6	17	23	7	0	0	2	11	0	0	16	2	5	4	14	2	9	10	0
February	7·2	6·1	6·7	2·37	·45	25th 26th	57	21	53·1	19·5	18	13	4	0	0	2	12	2	5	4	3	6	6	15	4	16	2	0
March	4·9	3·0	4·0	0·30	·08	16th	?153	?42	98·6	26·9	7	21	2	0	0	9	3	0	8	6	3	3	8	11	3	26	2	0
April	4·4	4·3	4·4	0·54	·20	16th	240	57	128·0	30·6	8	13	0	0	1	11	6	0	11	11	6	19	5	2	3	8	5	1
May	5·6	5·0	5·3	1·94	·74	17th	198	40	187·1	37·8	10	3	0	1	3	3	7	0	10	7	6	12	3	11	2	15	6	0
June	5·9	4·9	5·4	1·23	·44	26th	197	39	168·6	33·5	8	0	0	0	3	6	8	0	14	5	8	18	6	9	1	9	4	0
July	5·9	5·8	5·9	3·59	1·39	3rd	172	34	161·5	32·1	16	0	0	0	5	1	7	0	0	11	4	9	4	7	6	13	6	2
August	4·9	4·4	4·7	2·82	·79	5th	199	44	147·7	32·5	16	0	0	0	4	7	3	0	13	8	0	5	3	14	7	19	5	1
September	4·5	5·0	4·8	1·52	·68	26th	145	39	105·4	28·1	13	2	0	0	3	6	5	0	22	9	0	1	4	8	9	22	7	0
October	4·1	5·8	5·0	2·04	·68	7th	136	42	80·5	25·1	13	4	1	0	0	7	7	0	24	6	0	0	1	18	13	19	5	0
November	7·3	6·6	7·0	2·18	·53	18th	44	18	42·1	16·9	19	15	5	0	0	2	12	2	8	17	7	6	1	6	7	9	7	0
December	6·6	5·5	6·1	2·67	·72	12th	33	15	24·5	10·5	20	7	2	0	0	4	8	0	1	5	1	0	3	25	13	14	1	0
Year	5·7	5·2	5·5	22·51	1·39	July 3rd	1595	33·3	1222·7	26·75	165	101	21	1	19	60	89	4	116	105	40	84	48	140	70	179	60	4

HEIGHT OF THE RIVER OUSE AT OUSE BRIDGE DURING 1893.

Date.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Feet.	In.	Feet.	In.	Feet.	In.	Feet.	In.	Feet.	In.	Feet.	In.	Feet.	In.	Feet.	In	Feet.	In.	Feet.	In.	Feet.	In.	Feet.	In.
1	0	6	1	10	2	6	0	5	Water off.		0	4	0	6	0	2	S. L.		1	0	0	6	1	10
2	0	6	4	3	9	2	0	6	,,	,,	S.L.		0	6	0	2	,,	,,	S. L.		0	10	0	6
3	0	6	3	10	12	6	0	6	,,	,,	0	6	0	5	Water off.		,,	,,	0	4	1	6	S. L.	
4	0	6	2	1	11	6	0	6	,,	,,	0	6	0	6	1	6	,,	,,	0	6	0	10	0	5
5	0	6	0	10	10	0	0	6	,,	,,	0	6	0	6	Water off.		,,	,,	1	6	0	6	0	6
6	0	6	1	3	6	0	0	6	,,	,,	0	6	0	6	,,	,,	,,	,,	0	7	0	6	0	7
7	0	6	0	8	2	7	0	6	,,	,,	0	5	0	5	,,	,,	,,	,,	S. L.		Water off.		0	11
8	1	0	1	2	1	6	0	6	,,	,,	0	6	0	4	,,	,,	,,	,,	0	6	,,	,,	1	6
9	1	0	2	2	1	5	Water off.		,,	,,	0	6	1	2	,,	,,	,,	,,	1	0	,,	,,	2	6
10	0	9	6	6	1	7	,,	,,	,,	,,	0	5	0	6	0	2	,,	,,	0	6	,,	,,	1	3
11	Water off.		7	8	1	3	,,	,,	,,	,,	0	6	1	6	0	3	0	2	0	6	0	10	1	3
12	,,	,,	4	6	1	0	,,	,,	,,	,,	0	5	1	0	0	2	S. L.		0	5	0	6	1	7
13	,,	,,	1	0	0	10	,,	,,	,,	,,	0	4	0	6	S. L.		,,	,,	0	3	0	7	4	10
14	,,	,,	3	6	1	2	,,	,,	,,	,,	S.L.		0	6	,,	,,	,,	,,	0	3	S.L.		8	0
15	,,	,,	7	10	1	2	,,	,,	,, S.L.	,,	,,	,,	0	4	,,	,,	,,	,,	0	6	0	1	4	0
16	,, S.L.	,,	3	0	1	0	,,	,,	,,	,,	,,	,,	0	6	,,	,,	,,	,,	2	6	0	1	2	4
17	0	9	2	6	1	1	,,	,,	,,	,,	,,	,,	0	4	,,	,,	,,	,,	1	10	0	1	1	0
18	1	0	2	0	1	0	,,	,,	0	6	,,	,,	0	6	,,	,,	,,	,,	0	9	1	0	1	1
19	4	6	7	2	1	0	,,	,,	0	6	0	6	0	4	,,	,,	,,	,,	0	6	0	8	0	11
20	3	6	3	2	1	0	,,	,,	S.L.		S. L.		2	0	Water off.		,,	,,	0	6	0	6	3	2
21	2	3	1	6	1	0	,,	,,	0	6	,,	,,	0	6	,,	,,	,,	,,	0	3	0	11	2	3
22	0	9	1	2	0	11	,,	,,	0	6	,,	,,	0	6	,,	,,	,,	,,	0	6	1	0	0	11
23	1	3	2	2	1	0	,,	,,	0	6	,,	,,	0	4	,,	,,	,,	,,	0	2	0	11	5	0
24	1	10	1	0	1	0	,,	,,	0	6	,,	,,	0	6	,,	,,	,,	,,	0	3	0	6	1	2
25	0	10	1	0	0	9	,,	,,	0	6	0	6	S. L.		0	6	0	4	S. L.		0	6	0	11
26	1	0	1	0	0	10	,,	,,	0	4	0	5	,,	,,	0	4	S. L.		0	2	2	6	4	3
27	1	0	3	6	0	10	,,	,,	0	6	0	5	0	3	S. L.		0	3	1	6	1	6	1	8
28	1	2	3	6	0	7	,,	,,	0	6	0	5	0	4	,,	,,	0	6	0	10	S.L.		0	6
29	0	6			0	6	,,	,,	0	6	0	6	0	4	,,	,,	3	0	1	5	0	6	1	0
30	2	5			0	6	,,	,,	0	6	1	2	0	4	0	1	1	9	0	6	0	5	0	5
31	1	9			0	6			0	6			0	4	S. L.				0	3			0	4

Water off 1 foot.

RIVER HEIGHT RECORDS REGISTERED BY THE AUTOMATIC RECORDER AT GUILDHALL, 1893.

Date.	AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Time.	Depth below S.L.	Depth above S.L.	Time.	Depth below S.L.	Depth above S.L.	Time.	Depth below S.L.	Depth above S.L.	Time.	Depth below S.L.	Depth above S.L.	Time.	Depth below S.L.	Depth above S.L.
1				12 a.m.		S.L.	noon.		1 2				6 a.m.		3 11
2				,,		,,	12 p.m.		1 0	6 p.m.		1 6	3 p.m.		0 6
3				,,		,,	noon.		0 9	5 a.m.		1 11	4 p.m.		0 3
4				,,		,,	12 p.m.		2 0	11·30p.m		2 0	3 p.m.		0 10
5				,,		,,	6 a.m.		2 10	4 a.m.		1 0	1 p.m.		0 9
6				,,		,,	1 a.m.		1 4	noon.		0 7	6 a.m.		0 11
7				,,		,,	noon.		0 2	6 p.m.	3 0		3 p.m.		1 0
8				,,		,,	,,		0 10				2 p.m.		1 8
9				,,		,,	,,		1 2	9 a.m.	2 11		8 p.m.		3 3
10				,,		,,	,,		0 9	8 p.m.	2 2		5 p.m.		1 3
11				,,		,,	,,		0 7	11 a.m.		1 1	6 p.m.		2 10
12				,,		,,	,,		0 7				9 a.m.		2 3
13				,,		,,	,,		0 6				3 p.m.		5 3
14				,,		,,	,,		0 5	11 a.m.		8 0	,,		8 6
15				,,		,,	,,		0 10	8 a.m.		0 5	2 a.m.		7 0
16				,,		,,	8 p.m.		4 2	7 a.m.		0 4	noon.		2 8
17				,,		,,	noon.		2 0	,,		0 6	6 p.m.		1 4
18				,,		,,	6 p.m.		1 2	8 a.m.		1 3	noon.		1 4
19				,,		,,	noon.		0 10	6 p.m.		0 10	12 p.m.		1 1
20				,,		,,	,,		0 8	12 p.m.		1 2	4-30 p m.		4 2
21				6 p.m.		4 0	,,		0 6	1 p m.		1 9	8 a.m.		3 0
22	12 p.m.	5 4		,,		S.L.	,,		0 7				12 p.m.		1 4
23	,,	5 8		,,		,,	,,		0 4	10 a.m.		1 0	noon.		5 3
24	12-5 a.m.	5 8		12 a.m.		0 3	,,		0 4	12 p.m.		0 6	4 p.m.		0 10
25	8 p.m.		0 9	,,		0 5	,,		S.L.	11 p.m.		1 3	12 p.m.		3 10
26	12 p.m.		0 11	,,		4 0	12 p.m.		1 6	noon.		2 8	2 p.m.		4 6
27	10 a m.		0 11	12 p.m.		1 3	11 a.m.		2 3	,,		1 7	3 p.m.		2 0
28	12 p.m.		0 8	noon.		1 0	noon.		1 0	,,		0 2	6 p.m.		1 2
29	12 p.m.		0 8	12 p.m.		3 0	,,		1 4	6 a.m.		1 0			
30	12 p.m.		0 8	noon.		2 0	6 p.m.		1 0	12 p.m.		3 0			
31	12 p.m.		0 5				6 p.m.		0 10				4 p.m.		0 6

DIFFERENCES IN 1893 FROM MEANS.

Colums 1—6 for fifty years, 1841—90; Columns 7—10 for ten years.

	Mean Barometer.	Thermometer.			Rain.	Rainy Days.	Mean Rel. Humidy. 1881-90.	Sunshine. (1881—1890).		Visibility. 1883-1892.
		Min.	Max.	Mean of both.				Hours.	Percentage.	
Jan.	+ 0·18	— 1·7	— 0·8	— 1·25	— 0·43	+ 2½	+ 1·3	— 4½	— 1·6	— 1·9
Feb.	— 0·29	+ 2·0	+ 1·6	+ 1·8	+ 0·85	+ 5	+ 1·6	+ 4	+ 1·5	+ 3·0
Mar.	+ 0·20	+ 0·8	+ 8·5	+ 4·65	— 1·37	— 7	— 2·3	+ 54½?	+15·1?	+ 2·1
April	+ 0·31	— 0·2	+ 7·5	+ 3·65	— 1·07	— 5½	— 3·2	+ 112	+26·4	+ 3·7
May	+ 0·12	+ 2·0	+ 4·6	+ 3·3	+ 0·13	— 3	— 0·1	+ 11	+ 2·2	+ 3·7
June	+ 0·05	+ 0·4	+ 2·5	+ 1·45	— 1·01	— 4½	+ 0·5	+ 28½	+ 5·5	+ 8·9
July	— 0·03	+ 0·3	+ 0·5	+ 0·4	+ 0·93	+ 2½	— 0·9	+ 10½	+ 1·9	—
Aug.	+ 0·07	+ 2·7	+ 4·6	+ 3·65	+ 0·13	+ 2	— 1·3	+ 51½	+ 11·5	+ 8·3
Sept.	— 0·12	— 0·8	+ 0·9	+ 0·05	— 0·88	— 0½	— 3·9	+ 39½	+ 10·9	+ 16·4
Oct.	— 0·02	+ 0·2	+ 2·6	+ 1·4	— 0·58	— 4	— 1·6	+ 55½	+ 16·9	+ 20·2
Nov.	+ 0·11	— 1·8	+ 1·2	— 0·3	+ 0·09	+ 2½	— 2·2	+ 2	+ 1·1	+ 7·7
Dec.	— 0·01	+ 1·9	+ 3·9	+ 2·9	+ 0·71	+ 5	— 1·6	+ 8½	+ 4·5	+ 0·9
Year	+ 0·045 (29·949)	+ 0·5 (41·5)	+ 3·1 (57·5)	+ 1·8 (49·50)	— 2·50 (22·51)	— 5½ (165)	— 1·3 (83·2)	+372½ (1595)	+ 6·5 (33·3)	+ 73·0 (116)

SUPPLEMENTARY RETURNS

SUPPLIED BY

H. RICHARDSON, ESQ., AND R. THOMPSON, ESQ.

1893.	RAINFALL.		SUNSHINE AT OSWALDKIRK.	SCALBY, NR. SCARBORO.			
	CHERRY HILL.	ILKLEY.		1892.		1893.	
	Inches.	Inches.		Hrs.	Min.	Hrs.	Min.
January	1·23	1·00	39·88	50	40	58	0
February	2·29	3·81	57·75	50	35	70	30
March	·30	1·37	179·45	139	5	182	0
April	·47	1·03	227·20	204	35	210	0
May	1·83	2·35	174·45	162	50	167	30
June	1·37	2·63	169·65	163	30	171	30
July	3·99	3·27	158·30	118	5	167	30
August	2·89	2·84	189·05	135	0	194	40
September	1·51	3·08	142·05	127	5	162	0
October	1·91	3·89	123·50	81	30	142	0
November	2·11	2·22	43·80	50	20	41	30
December	2·64	4·86	36·65	54	30	48	35
Total	22·54	32·35	1541·73	1337	45	1615	45

The above are Calendar months throughout.

THE TREASURER IN ACCOUNT WITH

THE YORKSHIRE PHILOSOPHICAL SOCIETY

FOR THE YEAR ENDING 31ST DECEMBER, 1893.

Dr. INCOME.

		£. s. d.	£. s. d.
Subscriptions:			
Town Members		556 0 0	
Country Members		17 0 0	
Temporary Members		1 0 0	
Lady Subscribers		52 0 0	
Associates		13 0 0	
Arrears		12 15 0	
Keys of Gates		50 5 0	
Donations		1 0 0	
			703 0 0
Rents:			
Sir Reginald Oakes, Bt., and Major Allenby, St. Mary's Lodge		57 10 0	
Mr. Sykes, Bootham and Marygate Towers		24 0 0	
Mr. Hill, Marygate Baths		40 0 0	
York Amateur Rowing Club		5 0 0	
Corporation of York		2 0 0	
York and District Field Naturalists' Society, less £1 paid to Attendant		2 0 0	
Water Works Company		0 1 0	
			130 11 0
Hire of Tent and Tables		19 15 2	
Less:			
Expenses of fixing, Carriage and Repairs		4 19 0	
			14 16 2
Meteorological Department			15 12 0
Whitsuntide Admission Fees		13 12 4	
Less:			
Attendants and Police	4 2 0		
Joiners Fixing Barricades	0 12 9		
		4 14 9	
			8 17 7
Sale of Catalogues			9 2 6
Sale of Photographs			5 0 8
Sale of Plants			1 8 0
Bank Interest			0 8 4
Gate Money			225 18 4
			£1114 14 7
Balance in hands of the Treasurer, 31st December, 1893			39 7 2
			£39 7 2

EXPENDITURE. **Cr.**

		£. s. d.	£. s. d.
Crown Rent			1 0 0
Corporation Rent			19 9 2
Rates and Taxes:			
Rates and Taxes, Parishes of St. Wilfrid and St. Olave		23 2 7	
Waterworks Company		3 9 6	
Gardeners' Licenses		2 5 0	
Stamping Receipt Book		1 9 2	
Legacy Duty on Dr. Reed's Specific bequest of Specimens, Books, &c.		1 12 0	
			31 18
Insurance			7 5 0
Salaries and Wages:			
Mr. Platnauer		200 0 0	
Mr. Fielden		60 0 0	
Miss Baines		39 0 0	
Mr. Guy		25 0 0	
Attendants, Museum and Hospitium, viz:			
Attendant at Museum	61 14 0		
Female attendant at Museum	20 8 0		
Female attendant at Hospitium	32 10 0		
		114 12 0	
Gardeners, including Sunday duty at Gate snd extra Labour		88 10 6	
			527 2 6
Yorkshire Insurance Company—Annuity			198 5 1
General Repairs, and Expenses.			
Museum and Hospitium, Additions, Repairs and Expenses		34 7 3	
Gardens do.		15 6 6	
Estate: General Repairs	19 11 7		
Baths: Allowance to Tenant for Repairs	20 0 0		
Fixing Lattice on Bath Wall	5 0 0		
		44 11 7	
			94 5 4
Library			16 2 4
Lectures and Conversazione			45 15 9
Printing and Stationery			9 12 9
Printing Reports & postages thereof			25 0 1
Printing Communications to Members and postages of same			4 2 0
Gas, Coal, and Coke:			
Museum		18 7 10	
Gardens		10 13 9	
Estate		17 6 0	
			46 7 7
Antiquities: Purchases and Repairs			40 8 0
Meteorological Department			15 12 0
Catalogues for Sale			12 10 0
Photographs for Sale			5 1 3
Sundry Postages			6 5 7
Military Bands			4 8 4
Sundries, including Carriage of Parcels, Firewood, &c.			4 2 7
			£1114 13 7
Excess of Income over Expenditure			0 1 0
			£1114 14 7
Balance in hands of the Treasurer 31st December, 1892.			39 6 2
Excess of Income over Expenditure, 1893			0 1 0
			£39 7 2

The Legacy of £600 received by the Society from the Executors of the late Dr. Reed was in November last invested in York Corporation 3 per cent. Redeemable Stock, the interest thereon being payable half-yearly on the 1st of January and the 1st of July.

EDWIN GRAY, Hon. Treasurer.

Examined and found correct,
J. A. CUNNINGHAME.
York, 2nd February 1894.

DONATIONS TO THE MUSEUM & LIBRARY.

LIBRARY.

Books Presented.	Donors.
The Journal of the Chemical Society of London, vols. lxiii. & lxiv., 1893, and abstracts.	The Society.
The Bulletin of the American Geographical Society, vol. xxiv., No. 4, vol. xxv., Nos. 1, 2, 3.	The Society.
The Transactions of the New York Academy of Sciences, vol. xii., 1892-93, with Index and Title Pages.	The Academy.
Records of the Geological Survey of India, vol. xxv., part iv., vol. xxvi., parts i., ii., and iii.	The Indian Survey.
The Report of the British Association for the Advancement of Science, Edinburgh, 1892.	The Association.
The Memoirs of the Russian Geological and Natural History Societies, vol. xii., Nos. 1 & 2, vol. xxi., No. 1., vol. xxii., Nos. 1 & 2.	The Societies.
The United States Geographical and Geological Survey, vol. vii., Contributions to North American Ethnology, and Annual Reports of the Bureau of Ethnology for 1885-6 & 1886-7. The Annual Report of the United States Geological Survey, 1889-90, parts i. and ii. Bibliography of the Athapascan and Chinookan Languages, by J. Constantine Pilling.	The United States Survey.
Catalogue of the British Echinoderms, by F. Jeffrey Bell, M.A.	The Trustees of the British Museum.
Catalogue of Birds, vol. xxi., by T. Salvadori.	
Catalogue of Snakes, vol. i., by G. A. Boulenger.	
Catalogue of Madreporaria, vol. i., by G. Brook.	
Illustrations of typical specimens of Lepidoptera Heterocera, by G. F. Hampson, and Guide to Sowerby's Models of British Fungi in the British Musem.	

The Transactions of the Edinburgh Geological Society, vol. vi., part v., and Roll of Members.	The Society.
The Transactions of the Zoological Society of London, vol. xiii., parts v. & vi., and Proceedings, part iv., 1892, part i., 1893.	The Society.
The Proceedings of the Geologists' Association, vol. xiii., parts i., ii., iii., iv., & v.	The Association.
The Memoirs and Proceedings of the Manchester Literary and Philosophical Society, vols. vi. & vii., parts i., ii., & iii.	The Society.
The Journal of the Manchester Geographical Society, vol. viii., Nos. 1—6., vol. ix., Nos. 1—6.	The Society.
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MUSEUM.

GEOLOGICAL DEPARTMENT.

Bones of the Ox and Horse from the bed of the Wiske.	Mr. Hutton.
A Piece of Wood from the Wharfe at Townsville, Queensland, pierced by *Teredo*.	Mrs. Oxtoby.
Six Specimes of *Selenopora Jurassica* from the calcareous grit, Ruston, Yorkshire.	Mr. S. Chadwick, F.G.S.
Specimens of *Terebratula maxillata* from the Great Oolite, Kirtlington, Oxford. Two specimes of *Athyris concentrica*, from the Middle Devonian, Boulogne. Specimes of *Acanthothyris paucispina* and other Brachiopods; three specimens of Rhynconella from the Lower Calc. Grit, Hutton Bushell.	Mr. J. F. Walker, M.A.

ANTIQUITIES.

A Stone Axe from the Island of St. Vincent, West Indies.	Major Barstow.
A very fine collection of Coins, Roman and English, Gold, Silver, and Bronze.	Mrs. Lund, Clapham, London.
Part of a Norman Cross, found at Hunmanby.	Mr. T. Boynton.
A Sixpence of George III., in good preservation.	Mr. Busby.

A Bronze Statue of Hercules, found in Peaseholme Green, York, in 1852; the weight of a bronze steelyard in the shape of a female head, found at Cirencester in 1780; two votive Bulls' Heads of bronze; a bronze Pin (silvered), and a fibula, found in York: all these from the Bateman collection just dispersed; a glass Bottle, marked I. V., 1742, for Isaac Umpleby, of Barrow-on-Humber; and a blue Plate from The Belle Vue Pottery, Hull.	Mr. Boynton.
A Badge bearing St. Cuthbert's Cross.	Mr. G. E. Barton.
Three British Urns, and some flint implements, found in a barrow at Marton, near Flamborough.	Mr. Ralph Creyke, Rawcliff Hall.
A large collection of Roman curiosities, discovered in York, comprising twenty Urns, and many specimens of Samian ware; two glass Bottles; two jet Pins; many fine implements and ornaments in bone and bronze; a small gold Ring; several Danish curiosities, including an Ear-ring of amber; a number of Coins; three mediæval Vessels; a Moorish Dagger-knife, and two African implements, etc.	Mr. E. Bean, The Bank.
Papers found on the field of Waterloo a few days after the Battle, by Mr. W. Whytehead.	Mr. T. B. Whytehead.

ZOOLOGY AND COMPARATIVE ANATOMY.

Specimen of the Dace.	Mr. John Melrose.
Three Specimens of *Helix alternata* from Illinois River, and a Mytilus shell from U. S. America.	Mr. Lund.
Sets of Eggs of the following Birds from Iceland: Red-breasted Merganser, Eider Duck, Harlequin Duck, Long-tailed Duck, Pochard, Scaup Duck, Scoter, Widgeon, Black Guillemot, Wheatear (two nests), Red-throated Diver, Great Northern Diver, and White Wagtail, also skin of the Great Northern Diver.	Dr. Tempest Anderson.
A small series of Shells from Tasmania.	Mr. J. E. Clark, B. Sc.
A small collection of Shells.	Miss Kirby.

A Velvet Scoter, shot near Goole, Jan. 20th, 1893; a Snow Bunting from Teesdale, Feb. 6th, 1893; a Jack Snipe, shot in Kirby Overblow, Low Fields, Dec. 2nd, 1893; a variety of Partridge, picked up dead under telegraph wires two and a-half miles from Thirsk, Dec. 31st, 1893.	Mr. J. Backhouse, F.Z.S.
An Adult Buffon's Skua, shot in Bridlington Bay, Sept. 26th, 1893.	Rev. Canon Raine.
A collection of Birds' Skins and several small mammalian Skulls.	Mrs. H. C. Shann.

MINERALOGY.

A collection of Minerals from Faroe.	Miss C. Birley, Manchester.
Crystals obtained in the final washings for diamonds, Kimberley.	Major J. A. Barstow.
Specimen of Quartzite from Teesdale.	Mr. J. Backhouse, F.Z.S.
Two Rock specimens and two Crystals of Stalactite from America.	Mr. Lund.
Rock specimen of Portland Stone from the Isle of Portland.	Mr. F. J. Barnes.

APPARATUS, &c.

A new Lamp for lighting the Garden Path.	Mr. James Melrose.

SERIAL WORKS SUBSCRIBED FOR.

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SUNSPOT PERIODS AND THE YORK RAINFALL.

This question was considered to a slight extent in the paper on "Fifty Years of York Meteorology," printed in the Report for 1891. The conclusion was then drawn that the annual rainfall did not give any special indication either way. The fifty years included four maxima and five minima. Taking 16 years selected about each of these periods, it was found that the 16 nearest the four maxima gave 422·58 inches of rain, and the 16 nearest the five minima gave only 385·65 inches. The fluctuation of 36·93 inches, or 9½%, falls, of course, very far short of yearly fluctuations, or even decennial values, thanks to the exceptional nature of the seventies.

When, however, the monthly values for the four wettest months were considered there was a decided contrast. This has led me to examine all twelve months in the same manner. The results are exhibited in the accompanying table.

Month by month there is great irregularity, as might be expected, from the comparatively small numbers dealt with. It is obvious, however, that during maxima, there is a tendency to excess of rainfall, with a small exception in May and a most marked minimum in August. The former may well be accidental. It is difficult to suppose such to be the case in the latter. The difference changes from a negative value of nearly twenty inches, or 61% of the value at maxima, to a positive value of nearly 11 inches (or 33%) in September, and 14¼ inches (or 44%) in October. June, likewise, has an excess of nearly 40%, whereas July is practically the same at maxima and minima, thus preparing the way for August. The popular attribution of broken weather after St. Swithin's suggests that, were July taken day by day, or week by week, the change from positive to negative might show itself about the last week of the month.

If the months are "Bloxamised" in couples the curve remains positive all through, except for the July-August-September period. It ranges from +38½% for September-October to —21½% for July-August.

This single but considerable exception to the general excess of rainfall in periods of sun-spot maxima becomes, it will be noticed, a matter of supreme importance from its happening about harvest time. It gives a sufficient reason for sun-spot maxima and good harvests frequently coinciding, although there is a tendency to excess of rain in such years. The excess comes in June and late autumn; the latter after harvest is ended, the former when the crops are better for the rain.

The years 1892-3, a period of maximum sun-spots, on the whole illustrate the general tendency. In 1892, August gave a rainfall slightly under the average, October one of the heaviest on record. This year, August must, locally, count as an exception. There was a slight excess, due to one or two heavy falls. At any rate the month proved to be one of the most glorious for harvest weather since the sixties. Were we, moreover, dealing with the *district* and not the *city* a considerable deficiency would have been shown. This is a capital instance of an accidental exception, such as makes it important not to theorise upon too narrow a range of observations. Last October gave, at York, a deficiency of 8% or 9% and the fall was below the average, also, over Yorkshire and adjacent parts. Yet here again there was considerable excess in other parts of the kingdom. Therefore, although the present maximum will doubtless show an excessive fall in October on the three-year mean, we must await next year's results before we can tell whether August will result in a local deficiency. Whether the conditions existing here are true of the district can only be told by a similar examination in other localities.

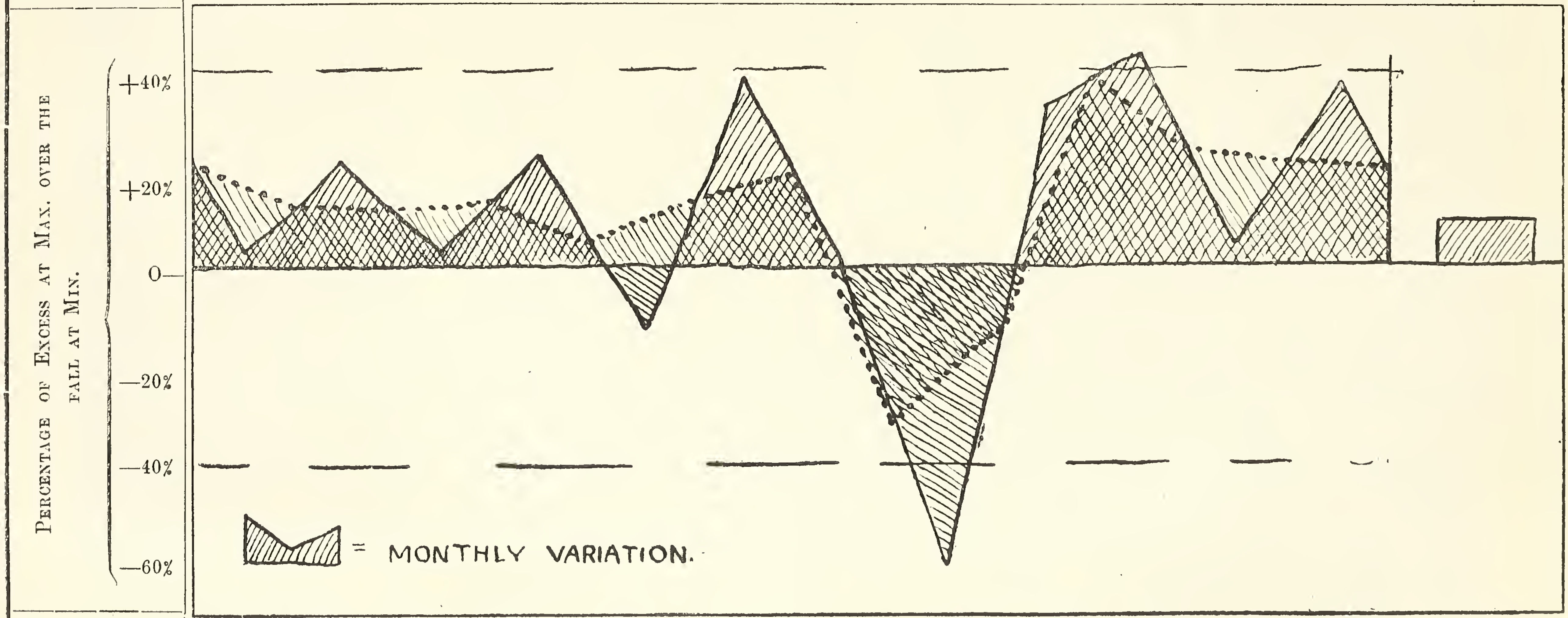
J. EDMUND CLARK.

NOTE.—Since the above was written "*Knowledge, December*, 1893," has published an interesting article by A. B. McDowall, M.A., upon the rain-curves since 1840, at eleven British stations, Bloxamised in five-year periods. The variation over the country is very striking. Sheffield (as might be expected) and Oxford give curves approaching nearest to that for York, but our high maximum for 1870 (1868-72) is prominent in neither, nor is it marked in any save Keswick and Rothesay, in both of which it is excelled by 1861, which at York was below the mean. All give a very marked minimum in '55 or '56, which hardly affects York. As to this paper we may observe:—(1.) Three years, rather than five would seem to be a preferable period to take; the latter including the *whole* sunspot cycle and so masking extremes. (2.) As noted above, there would seem to be great tendency to *yearly* values being masked by conflicting *monthly* variations. It would be very interesting if Mr. McDowall would develop these and so show which months in each case most affect the yearly results. Thus, the excess during the seventies is far more prominent away from the west coasts. This at York proved to be chiefly due to wet Septembers.

RAINFALL COMPARISON FOR YORK

of the 16 years nearest sunspot maxima and 16 nearest minima during the 50 years, 1841-1890.

Month.		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Total	16 Max	28·58	28·48	26·30	32·28	27·74	43·83	43·20	32·11	43·87	46·76	33·63	37·06	422·58
	16 Min.	27·73	23·65	25·67	27·12	31·22	31·56	44·13	51·83	32·89	32·53	32·14	26·98	385·65
Excess	16 Max	0·85	4·83	0·63	5·16	3·48	12·27			10·98	14·23	1·49	10·08	36·93 Inches.
	16 Min.							0·93	19·72					



%age Excess	16 Max	3	20½	2½	22½		39			33	44	4½	37⅓	9½ %
	16 Min.					13		2	61					
Ditto, Bloxamised in 2 month Sets		20	12	11½	12½	5	13	18½	—21½	—14	38½	24	21	20

HERBARIUM NOTES, &c.

The Contributors to the British Collection.

In the first report issued by the Yorkshire Philosophical Society, 1824, mention is made of the presentation of Herbarium specimens by James Backhouse, Esq., Capt. Fred Vernon, R.N., and Miss Atkinson. Also of donations to the Library, consisting of a volume of the Flora Scotica by the author (W. J. Hooker, LL.D.), and Flora Edinensis by the author (R. K. Greville, LL.D.), both of whom were distinguished botanists, and Honorary Members of this Society.

The names of the Rev. James Dalton, S. Hailstone, Esq., W. Middleton, Esq., are associated with those, who, in the early years of this Society's existence, endeavoured to realize the wishes of its originators.

The Rev. James Dalton, a distinguished naturalist of this county, presented in 1827, a valuable collection of 2,500 specimens of British Phanerogams.

In the same year, 1827, W. Middleton, Esq., of Poppleton, contributed a similar collection of 1,780 specimens, well illustrated by characteristic varieties.

The Herbarium was enriched in 1833 by a collection of Scottish plants, which had obtained the gold medal of the Botanical Professor at Edinburgh University. This donation was made by Giles Munby, Esq., of York, the collector of the specimens and a celebrated Botanist.

In addition to these donations, the Society became possessors of the following collections of British Phanerogams—Hailstone, 1852, O. A. Moore, 1862, Dalton, miscellaneous collection, 1887, Walker, 1892-93.

The Arrangement of the Specimens.

In 1827, the Rev. W. Hincks, F.L.S., Lecturer on Botany, York School of Medicine, was appointed Honorary Curator of Botany. He commenced in 1828 to arrange the Botanical specimens according to the natural system of De Candolle, and in doing so, incorporated the collections of Backhouse, Dalton, and Middleton.

In addition to arranging the specimens in the Herbarium, Mr. Hincks delivered a course of Lectures on Botany in 1829, the proceeds of which (£13 6s. 9d.) was devoted to the Garden Fund. He manifested a great interest in the Gardens of this Society, which prior to this period (1828) was described in the report of the council as "nothing but a widely extended heap of rubbish and fragments of stone."

The practical management of the Gardens was entrusted to Henry Baines, and the zeal with which he laboured to convert this "waste land" into a Botanical and Ornamental Garden has been frequently commended in the reports of the council (1827-78.)

From 1835 to 1838 the Honorary Curator had to suspend the arrangement of the specimens, owing to the want of "a receptacle for them." He assisted Mr. Baines in the management of the Gardens which appear to have been very popular at this time, for the Horticultural Fete which was held in August 1838 realized a profit of £94 7s.

The Honorary Curator (Rev. W. Hincks) resigned his Curatorship and left this city in the year 1839, in order to fulfil his engagement at Queen's College, Cork, as Professor of Natural History.

The publication (in 1840) of Baines' "Flora of Yorkshire," was a valuable contribution to the Botanical literature of Yorkshire. The compilation of this Flora had involved much time and labour, and the author utilised the information contained in the Dalton and Middleton collections.

The council appointed Mr. Oswald Allen Moore to the office of Honorary Curator of Botany in 1840. This gentleman devoted much of his leisure time to the Gardens, and to the collections in the Museum.

In addition to lecturing on Botany, he was engaged in a revised "Flora of Yorkshire," but owing to his sudden death in 1862, this work was never published.

In 1862, Dr. Matterson was appointed as Mr. Moore's successor, and he had the charge of the collections until his death in 1890.

Reference has been made to the Rev. W. Hincks' labour in connection with the arrangement of the Herbaria. Too much praise cannot be bestowed on him for his efforts in this direction. When he left the city in 1839, the orders to be arranged and mounted comprised the British representatives of the Cyperaceæ, Gramineæ, Filices, &c. In addition to these specimens the contributions of Hailstone, Moore, Dalton, and Walker, comprising over 6000 specimens required arranging, &c. After due consideration it was decided to complete Mr. Hincks' labour by commencing with the British Sedges (Cyperaceæ). The arrangement and nomenclature now adopted is that of the London Catalogue of British Plants, eighth edition.

The Natural Order Cyperaceæ, or Sedge family, is represented by over 2000 species, which consist chiefly of perennial grass-like tufted herbs, possessing solid, and frequently angular, stems. Leaves without ligules and with entire sheaths. Although resembling the Gramineæ (grasses) in appearance they do not possess the nutritious or other qualities of that order, and in this respect are of little service to man or animals. On the other hand we cannot disregard the importance of the genus Papyrus which furnished the ancient Egyptians with the paper reed. From the cellular tissues of this plant the Egyptians manufactured a paper, by means of which much of the history before the christian era has been recorded, and which was for many years the staple of Egypt.

Of the use of Bulrushes, *Scirpus lacustris*, it may be said that coopers employ them for the purpose of filling up the joints of casks, and in connection with this subject reference may be made to the book of Exodus which contains the narrative of the finding of the infant Moses "in an ark composed of bulrushes." In addition to these uses, rushes and sedges have been extensively employed in the making of baskets, carpets, chair seats, wicks for rushlights and in various ceremonial customs.

In the economy of nature several of the species of this order, (Cyperaceæ), appear to take up the work of the Sphagnei and other mosses. By means of their tufted or creeping rootstocks they help to bind the spongy soil of the bogs and marshes, and in this way assist in preparing humus for the advent of man or animals.

Among the useful sand-loving and binding plants mention may be made of *Carex arenaria*, which is distributed around the coast of the British Isles, and also *Carex incurva* (Lightf.), which is confined, in England, to the coast of Northumberland, and extends along the Scottish coast from Fife to the Shetland Isles.

In studying the distribution of plants there is much to be said in favour of the theory that species have originated at, and radiated from, definite centres. Changes must have been effected in the Flora of Britain since the sea covered the connecting links between this country and the continent, which may be ascribed to climatic conditions, or to human agency in the introduction or extinction of members of the Flora. It may assist us in appreciating these changes if we glance through the examples of the Cyperaceæ in your Herbarium and compare the records and specimens relating to the Flora of the British Isles (particularly as regards Yorkshire), since 1790.

In 1790, the ground between York Museum and the river Ouse was known as the Manor Shore. It was a waste piece of land on which a few native and alien plants contrived to exist. On the other side of the river, Hailstone recorded in 1806 the existence of *Carex stricta* as occurring "in the Ouze out of North Street Postern."

In 1830, *Carex disticha* (Huds), *C. ovalis* (Good), and *C. pulicaris* flourished in the damp low-lying fields between North Street Postern and Thief Lane.

None of these Carices are to be found in these stations now. The Manor Shore has been converted into the ornamental gardens belonging to this Society, and the space between North Street Postern and Thief Lane is now occupied by the Station Hotel and extensive system of the North Eastern Railway.

If we extend our peregrinations we shall find many places of especial importance to those who are interested in the distribution and preservation of the British Flora.

In the York District.	64 N.W. Askham Bogs, Dringhouses Brickpond. 61 S.E. Heslington Fields, Langwith, Skipwith, and Riccall Common. 62 N.E. Strensall and Towthorpe Commons, Suett Carr.
In the Malton District.	62 N.E. Terrington Carr.

In the Borobridge { 65 N.W. Leckby Carr and Copgrove.
and Ripon District. { 64N.W. Tanfield Hall Carr, Stavely Carr.

In 1790 these places were remarkable for their characteristic Flora. By 1893 most of these carrs and commons had been drained. The character of the Flora has been altered, and in many instances the native plants have disappeared.

The withdrawal of the water from the roots of Carices, &c., affects many of the moisture loving species. In other cases the plants are endeavouring to adapt themselves to their altered condition, and may contrive to survive, but most of the bog-loving species have already, or soon will, become extinct in these carrs.

As some of the Carices attain their austral, and others their boreal, limit in Yorkshire it is necessary that some notice should be taken of these particular plants.

Any information regarding the appearance or disappearance of these sedges, or the drainage of the carrs, will be gladly received and acknowledged by your Honorary Curator.

Beginning with the most local species we possess, viz.—*Carex paradoxa* Willd, there are specimens in your Herbarium labelled, "Heslington Fields, 1842. Richard Spruce and James Backhouse. Junr." "Heslington Fields, 1842-3. O. A. Moore." The late Dr. Spruce was the first to record this Carex for Yorkshire (1842). The distribution of this Carex extends throughout the northern and arctic parts of Europe and Siberia. In England its distribution is extremely local. It occurs in Askham Bogs, York, and Pansanth, E. Norfolk. It is not known to occur in Scotland, and in Ireland it is limited to Westmeath. The Heslington habitat is in the S.E. v. county, whereas the Askham Bogs locality is in N.W. Owing to the drainage and enclosing operations this species has long ceased to exist in Heslington fields, and the destruction of a vice-county record is a thing to be noted.

Carex axillaris (Good) is a very interesting species which reaches its boreal limit in Yorkshire. The particular ponds and adjoining land near Dringhouses where, in 1842, the late Dr. Spruce gathered this Carex, have been drained, and market gardens and terraces of cottages now (1893) occupy the site. Of the other specimens of *Carex axillaris* those collected by

Teesdale (1790) from Beverley, and Dalton (1803) from Copgrove, are extremely interesting.

Carex elongata L. does not appear to extend beyond Yorkshire. Your Herbarium possesses a specimen from Aldwark, near the river Don, contributed by J. Salt (1803), the original discoverer of this plant in Britain, also a specimen from near Langwith, O. A. Moore, 1842. In both these stations the marshes have been drained during the last 50 years, and this Carex is almost, if not entirely, extinct in these localities.

Of the other Carices which attain their boreal limit in Yorkshire, reference may be made to

Carex divulsa. The specimens in your collection are from Studley and Mackershaw Woods, Ripon, J. Dalton, 1820. Also specimens from a wood near the aqueduct, Shipley, June, 1844, S. Hailstone. In addition to these there are specimens from Ripon, collected by Brunton.

Carex strigosa (Huds.) is a very rare sedge, and it was first recorded for West Yorkshire by Dalton, in 1802.

Carex digitata L. is met with on dry wooded banks on limestone, and your Herbarium possesses an excellent series from Mackershaw Wood, Ripon, Dalton and Middleton, 1807; Thorparch, Spruce, 1842; Helmsley, Wilkinson, 1883.

Carex divisa (Huds.) From near Derricots, Hull, Col. Machell, 1790, contributed by Teesdale.

Of the austral type we possess two very interesting carices.

Carex pauciflora (Light) from the banks of the Derwent near Lilla Cross, N.E. Yorkshire, collected by Middleton in 1807. This Carex has not been observed in Yorkshire during the last fifty years.

Carex capillaris (Linn.) has been recorded for Teesdale many years. Cronkley Fell, Yorkshire, and (on the other side of the Tees), Widdy Bank, Durham. A more austral station was recorded by W. West, in 1878, viz:—near Gordale, W. Yorkshire.

Carex rigida (Good) belongs to the northern type of plants and it is remarkable that the specimen in your Herbarium which was collected by Dalton in 1797, from Ingleborough appears to be the only record for this mountain. Before 1885 this was the only record for Yorkshire, but in that year (1885) Mr. H. T. Soppitt found this Carex on Penyghent, so that we may hope that the old record of Dalton may be confirmed.

Among the members of the N.O. Cyperaceæ which are rapidly diminishing in Yorkshire, or have become extinct owing to drainage, &c., since 1790, reference may be made to

Carex limosa L. This rare Carex has a wide distribution among the spongy bogs of Arctic Europe, W. Asia, and N. America. In Great Britain it is very local, but its range extends from Caithness to Dorset.

The specimens in your Herbarium are from
Terrington Carr, 1790, R. Teesdale, now gone (1893.)
Tanfield Hall Carr, 1807, Dalton, ,, ,,
Suett Carr, 1840, Ibbotson, ,, ,,
Leckby Carr, 1809, Dalton, &c. ,, ,,

Cladium mariscus (Br.) Terrington Carr, 1790, R. Teesdale, now lost (1893).

Cladium mariscus (Br.) Stavely Carr, Yorkshire, Dalton, 1802, now lost (1893).

Carex paradoxa (Willd.) Heslington Fields, 1842, Spruce, Moore, Backhouse, now lost (1893).

Carex elongata L. Near Aldwark by the river Don, Sheffield, J. Salt, 1803; not observed 1876. A Carr, vide F. A. Lees, Flora, West Yorkshire.

Carex elongata L. Langwith, 1842, Moore, not seen (1893), H.J.W.

Rhynchospora alba Vahl. Diminishing on Strensall Common and will soon be extinct here (1893).

Scirpus acicularis L. Diminishing on Strensall Common.

Scirpus tabernæmontani (Gmel.) ,, ,, ,,

Carex teretiuscula (Good). Terrington Carr, 1790, now lost (1893). R. Teesdale.

Carex curta. Rare in the Ripon and York district and diminishing (in 1893).

Carex distans L. Rare in the Ripon and York district and diminishing (in 1893).

Carex filiformis L. Rare in the Ripon and York district and diminishing (in 1893).

Carex pseudo-cyperus L. Rare in the Ripon and York district and diminishing (in 1893).

To those who are interested in the records for Yorkshire plants, reference may be made to
Carex lævigata (Smith), Dallowgill (Ripon), August 15th, 1805, J. Dalton; *Carex filiformis* L., Tanfield Hall carr, J. Dalton, 1802.

Among the rare and local plants in your Herbarium two examples may be given which will conclude these preparatory notes.

Carex Davalliana, from Landsdowne, near Bath, which was presented by Sir J. E. Smith to the Rev. James Dalton. Sir J. E. Smith was the founder and first President of the Linnean Society and a personal friend of Dalton. The distribution of this Carex appears to extend throughout Southern Europe. In England the only authentic record appears to have been Landsdowne, Bath, but owing to drainage. &c., it has been extinct in this (Bath) district for many years.

It is a diœcious sedge and resembles its ally, *Carex dioica* L., but does not possess the creeping stoloniferous rootstock of that species. These two circumstances may have assisted in its extinction, after the ground had been drained.

The alpine cotton grass *(Eriophorum alpinum* L.) belongs to the Highland type of plants and is distributed through arctic and alpine Europe, N. America, and N. Asia. It has not been found in England, and the only station in Scotland, the Moss of Restenet, Forfarshire, whence your specimens were obtained, has been drained, and there is no trace of this very rare and interesting plant now. In addition to the extreme rarity of this plant the specimens possess a value in consideration of their collectors. Sir W. J. Hooker was the contributor of one specimen, and his name appears among the honorary members of your Society for 1824. For many years he was Professor of Botany at Glasgow, during which time he trained many students whose names are associated with the chief botanical expeditions and literature of the present century. To Sir W. J. Hooker and his son Sir Joseph Dalton Hooker the botanists of the world are indebted for many valuable publications and for the position which Kew holds among the botanical institutions of the world. In addition to this record there are numerous specimens and evidence in your

Herbarium to show how intimately he was connected with the Rev. James Dalton.

The other specimen of *Eriophorum alpinum*, L. was collected by Robert Teesdale in 1780, and subsequently came into the possession of Dalton. Robert Teesdale was one of the original members of the Linnean Society. On the 7th February, 1793, and December 4th, 1798, he communicated to the members of the Linnean Society the result of his observations on the Flora of Yorkshire.

His catalogue (Plantæ Eboracenses) contains the records "of over 900 species, exclusive of cryptogamia" and exhibits a wonderful amount of patient labour and research.

Shortly before his death he wrote the following letter to the Rev. Mr. Dalton.

"Dear Sir,

My present infirmities will not admit of my proceeding any further in the supplement to the Flora Eboracensis; I have therefore packed up the papers along with this, and have ordered, if it should please God to call me away, to send them to you, so that if you should at any time be so inclined, you may correct and finish it: the names of the plants are on slips of paper, filed as they occur in the Flora Britannica, errors excepted, and I meant at the latter end of it to have added an alphabetical list of some of the very rare ones, which are in those published, giving the different habitats, which have been transmitted to me by yourself, and our other friends.

The Rev. M. Harriman has promised to send me his observations on the plants he has observed in our County; when I receive his list it is all I have in view at present.

If you ever receive this, I shall be gone from whence no traveller returns, so have only to wish your family every blessing both here and hereafter,

And I am, Dear Sir,
Yours very sincerely,
ROB. TEESDALE.

Hammersmith."

The specimens of Teesdale's collecting in your Herbarium are in good condition.

Carex tomentosa L., which he was the first to record for England, is a very rare sedge. This interesting Carex was found in some wet meadows at Merston Measey, N. Wiltshire, by Rob. Teesdale, in 1798 (the date of your specimen), and came into the possession of the Rev. James Dalton about 1800. This is the only authentic habitat in England. The other specimen of *Carex tomentosa* is from the garden of H. C. Watson, whose name is cherished by all British botanists, and who adopted the method of cultivating many of these Carices in order to test their claims to rank as species.

In conclusion it may be observed that your Herbarium deserves every consideration and care at your hands, on account of its historical and botanical associations, and as an aid to the study of botany. In addition to these it possesses specimens of plants which are now regarded as extinct in the British Flora, a fact which your Honorary Curator has endeavoured to demonstrate by a reference to this natural order (Cyperaceæ).

HENRY JOHN WILKINSON.

APPENDIX TO THE LIST OF FIGURED SPECIMENS IN THE MUSEUM OF THE YORKSHIRE PHILOSOPHICAL SOCIETY.

In the Annual Report of the above Society for 1890 was published a list of all specimens in the York Museum known to me as figured specimens. This list was, however, not complete. A few cases were omitted through inadvertence. Some specimens have since been identified by the authors who figured them. But the main object of this Appendix is to bring the list up to date. Nearly all specimens given below have been figured or re-figured since the publication of the 1890 list.

As in the previous list, an asterisk attached to a specimen, shews that the specimen has not been marked as a figured specimen, or that the reference has been lost. Type specimens are distinguished by an antique **T**.

Holcospongia floriceps, Phil. sp.
(= *Spongia floriceps*, Phil.)
Lower Coral Rag. Hackness.
G. J. Hinde, Brit. Foss. Sponges (Pal. Soc.), p. 226. pl. xvi., fig. 6. **T** (genus).

Rhaxella perforata, Hinde.
Lower Calc. Grit. , Scarborough.
G. J. Hinde, Quart. Journ. Geol. Soc., vol. xlvi. (1890), p. 59, pl. vi., fig. 1. **T**

R. perforata, Hinde.
Lower Calc. Grit. Scarborough.
G. J. Hinde, Brit. Foss. Sponges, p. 210, pl. xiii., fig. 7, (This specimen belonged to Mr. Bean's collection, and was labelled by him "Spongia fovata, Mihi.")

R. perforata, Hinde.
Lower Calc. Grit. Scarborough.
G. J. Hinde, Quart. Journ. Geol. Soc., vol. xlvi. (1890), p. 59, pl. vi., figs. 2, 3.
Brit. Foss. Sponges, p. 210, pl. xiii., figs. *7a*, *7b*.

Sphenotrochus selseyensis, A. Bell.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 76, pl. i., fig. 31. **T**

Thenarocrinus gracilis, Bather.
Upper Wenlock Limestone. Dudley.
F. A. Bather, Ann. Mag. Nat. Hist., Series 6, vol. vii. (1891), p. 36, pl. i., figs. 4, 5. **T**

Diastopora regularis, D'Orb. var. *selseyensis*, A. Bell.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 77, pl. i., figs. 33, 33*a*.

Micropora regularis, D'Orb.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 77, pl. i., figs. 32, 32*a*.

Pustulopora (Cricopora) straminea, Phil.
J. W. Gregory, Catalogue Jurassic Bryoza (Ann. Rep. Yorks. Phil. Soc., 1893), fig. 2.

Stomatopora (Hippothoa) Smithi, Phil.
J. W. Gregory, Cat. Jurassic Bryoza (Ann. Rep. Yorks. Phil. Soc., 1893), fig. 1. **T**
(See also Ann. Rep. Yorks. Phil. Soc. 1890, p. 62).

Astarte pygmæa, Münst.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 7.

Cardium inæqualis, A. Bell.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., fig. 5. **T**

Cardium strigilliferum, S. V. Wood.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., fig. 6.

Donax vittatus, Da C. var : *nitidus*, Jeff.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., fig. 10.

Gastrana fragilis, Linn.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 9.

Lutraria rugosa, Chem.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., fig. 8.

Ostrea lusitanica L.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 73, pl. i., fig. 1.

Pecten polymorphus, Bronn.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 73, pl. i., fig. 3.

P. scrabiusculus, A. Bell.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 73, pl. i., fig. 2. **T**

P. testæ, Biv.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 73, pl. i., fig. 4.

Aclis unica, Mont.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 30.

Barleeia cingulata, A. Bell.
Interglacial. Selsey.
A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 76, pl. i., fig. 17. **T**

Chiton siculus, Gray.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., figs. 13, 13*a*.

Cyclostrema elegantula, Phillippi.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., figs. 16, 16*a*.

Dentalium candidum, Jeff.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74. pl. i., fig. 11.

Dentalium panormum, Chem.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc., (1892) p. 74, pl. i., fig. 12.

Hydrobia compactilis, A. Bell.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc., (1892) p. 75, pl. i., fig. 18. **T**

Melampus tridentatus, Edwards.

Barton Clay. High Cliff.

F. E. Edwards, Eocene Mollusca (Pal. Soc.) p. 113, pl. x., 4*a*, 4*b*. **T**

Murchisonia kendalensis, M'Coy.

Carboniferous Limestone, Oswestry.

Miss Jane Donald, Quart. Jour. Geol. Soc., vol. xliii. (1887), p. 625, pl. xxiv., fig. 4.

Murchisonia (*Hypergonia*) *quadricarinata*, M'Coy.

Carboniferous Limestone. Settle.

Miss Jane Donald, Quart. Journ. Geol. Soc., vol. xlviii. (1892), p. 564, pl. xvi., figs. 4, 5.

Natica (*Euspira*) *cincta*, Phil:

(=*Phasianella cincta*, Phil):

Grey Limestone. Cloughton Wyke.

Morris & Lycett, Great Oolite Mollusca (Pal. Soc.) p. 113, pl. xv., fig. 20.

[This is the same specimen that is given as *Phasianella cincta*, Phil. in the previous list (Ann. Rep. Yorks. Phil. Soc., 1890, p. 75). Messrs. Morris & Lycett state (*loc. cit.*) that the specimen they figure is the original one figured Phillips in Geol. Yorks. pl. ix., fig. 29. The name *Natica cincta* is unfortunate as there is a *Natica cincta*, Phil. in the Inferior Oolite (see Geol. Yorks., pl. iv., fig. 9, and Jur. Gasteropoda Pal. Soc. p. 266).]

Otina otis, Turt.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., figs. 14, 14*a*.

Rissoa bicarinata, A. Bell.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 75, pl. i., fig. 23. **T**

R. cimex, L.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 21.

R. deliciosa, Jeff.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 75, pl. i., fig. 25.

R. lactea, Mich.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 24.

R. montagui, Payr.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 76, pl. i., fig. 20.

R. multistriata, A. Bell.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 76, pl. i., fig. 26. **T**

R. scutula, A. Bell.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 75, pl. i., fig. 22. **T**

R. striatula, Mont.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 19.

Scalaria foliacea, J. Sow.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 29.

Solariella acutangula, A. Bell.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 74, pl. i., figs. 27*a*, *b*, *c*. **T**

S. approximata, A. Bell.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), p. 75, pl. i., figs. 28*a*, *b*, *c*. **T**

Trochus exasperatus, Pult.

Interglacial. Selsey.

A. Bell, Ann. Rep. Yorks. Phil. Soc. (1892), pl. i., fig. 15.

Acantoceras (?) peltoceroides, Pavl.

Lower Neocomian. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton" (Bulletin de la Soc. Imp. Nat. Moscou 1891), p. 152, pl. xi., fig. 20. **T**

A. peltoceroides, Pavl.

Op. cit. pl. xi., fig. 21.

Hoplites hetoroptychus, Pavl.

Neocomian. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton," p. 109, pl. xi., fig. 22. **T**

H. pseudomutabilis, Loriol.

Kimeridge Clay. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton," p. 98, pl. i., fig. 7.

Olcostephanus (*Polyptychites*) *gravesiformis*, Pavl.

Portlandian. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton," p. 124, pl. vi., figs. 7*a*, *b*, *c*. **T**

O. (*Polyptychites*) *gravesiformis*, Pavl.

Op. cit. pl. vi., fig. 8.

O. (*Polyptychites*) *Keyserlingi*, Neum and Uhl.

Portlandian. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton," p. 120, pl. ix., figs. 1*a*, *b*, *c*.

NOTE.--*O.* (*Simbirskites*) *Payeri*, Toula, stated in Pavlow and Lamplugh's "Argiles de Speeton" to be in this Museum is in Mr. Lamplugh's own collection.

O. (*Polyptychites*) *polyptychus*, Keys.

Portlandian. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton," p. 119, pl. viii., figs. 2*a*, *b*, *c*.

O. (*Polyptychites*) *triplodiptychus*, Pavl.

Portlandian. Speeton.

Pavlow and Lamplugh, "Argiles de Speeton," p. 122, pl. viii., figs. 4*a*, *b*, *c*. **T**

Gyrosteus mirabilis, Ag.

Lias (*Communis* Zone). Whitby.

J. F. Blake, "Yorkshire Lias" (Tate and Blake), p. 256, pl. ii., fig. 2. (Spine).

G. mirabilis, Ag.

Op. cit., pl. ii., fig. 3. (Fin-rays).

Orinthocheirus, Sp.

Cambridge Greensand. Cambridge.

H. G. Seeley, Geol. Mag., Decade II., Vol. VIII. (1881), p. 13, pl. i., figs. 1*a*, *b*. (Scapula).

Ichthyosaurus crassimanus, Owen.

Lias (*Communis* Zone). Lofthouse.

J. F. Blake, "Yorkshire Lias" (Tate and Blake), p. 253, pl. i., fig. 9. (Only the fore-arm is figured).

Omosaurus Phillipsii, Seeley.

Coralline Oolite. Slingsby.

H. G. Seeley, Ann. Rep. Yorks. Phil. Soc. (1892), fig. 1*b*, p. 55. (Femur).

Anas penelope, L.

Kirkdale Cave.

W. Buckland, "Reliquiæ diluvianæ," p. 266, pl. xi., figs. 28, 29. (Coracoid).

Enaliornis Barretti, Seeley.

Cambridge Greensand, Cambridge.

H. G. Seeley, Quart. Journ. Geol. Soc., Vol. XXXII. (1876), p. 500, pl. xxvi., figs. 5, 6. (Cervical vertebra).

Scolopax gallinago, Briss.

Kirkdale Cave.

W. Buckland, "Reliquiæ diluvianæ," p. 267, pl. xiii, figs. 11, 12. (Humerus).

Ailurus angelicus, Dawk.

Reg Crag. Felixstow.

E. T. Newton, Vert., Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 13, pl. i., figs. 17*a*, b.

W. Boyd Dawkins. Quart. Jour. Geo. Soc. (1888), p. 228, pl. x., figs. 1-4. **T**

(Part of right ramus of lower jaw, with carnassial).

(*See* also Ann. Rep. Yorks. Phil. Soc. 1890, p. 87).

Canis lupus, L.

Kirkdale Cave.

W. Buckland, "Reliquiæ diluvianæ," p. 267, pl. xiii., figs. 5, 6. (1st lower molar, right).

C. lupus, L.

Red Crag. Boyton.

E. T. Newton, Vert. of the Pliocene Deposits of Britain (Mem. Geol. Surv.) 1891, p. 8, pl. i., fig. 3.

(Left upper canine).

C. lupus, L.

Red Crag. Loc?

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 8, pl. i., fig. 4.

(Left upper carnassial).

C. primigenius, Lank.

Red Crag. Woodbridge.

E. Ray Lankester, Ann. Mag. Nat. Hist., Series 3, vol. xiv. (1864), p. 358, pl. viii., fig. 11.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 9, pl. i., fig. 6. **T**

(Canine tooth).

Castor veterior, Lank.

Red Crag. Sutton.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 50, pl. v., figs. 14*a*, *b*, *c*.

E. Ray Lankester, Ann. Mag. Nat. Hist., Series 3, vol. xiv., p. 355. (1864), pl. viii., fig. 5. (Left upper p. m. 4).

(*See* also Ann. Rep. Yorks. Phil. Soc. 1890, p. 88.

Cervus suttonensis, Dawk.

Reg Crag (Nodule Bed). Woodbridge.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 31, pl. iv., fig. 13.

(Portion of shed antler).

Globicephalus (Phocæna) uncidens. Lank.

Red Crag. Woodbridge.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 77, pl. vii., fig. 5.

E. Ray Lankester, Ann. Mag. Nat. Hist., Series 3, vol. xiv. (1854), p. 356, pl. viii., fig. 13. (Tooth).

(*See* also Ann. Rep. Yorks. Phil. Soc. 1890, p. 88).

Halitherium canhami, Flower.

Red Crag. Woodbridge.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 48, pl. v., fig. 5.

(Cheek tooth).

Hyæna striata, Zim.

Red Crag. Woodbridge.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 7, pl. i., figs. 10*a*, *b*.

E. Ray Lankester, Quart Journ. Geol. Soc., vol. xxvi. (1870), p. 511, pl. xxxiii., figs. 5, 6. (Rt. lower p. m. 4).

(*See* also Ann. Rep. Yorks. Phil. Soc., 1890, p. 88, where locality is incorrectly given as Felixstow, and tooth describes as rt. upper p. m. 3).

Hyænarctos, Falc. & Caut.

Red Crag. Felixstow.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 14, pl. i., fig. 11.

(Canine tooth).

NOTE.—This specimen is also referred to on p. 7 under *Hyæna striata*.

Hyænarctos, Falc. & Caut.

Red Crag. Felixstow.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 14. pl i., figs. 20*a*, *b*.

Described by Sir W. H. Flower as *H. sivalensis*. Quart. Journ. Geol. Soc. Vol. xxxiii. (1877), p. 534; and figured (to complete description). Ann. Rep. Yorks. Phil. Soc. 1886, pl. i., figs. 3, 3*a*. (Left upper first molar).

(*See* also Ann. Rep. Yorks. Phil. Soc. 1890, p. 89).

Hyænarctos, Falc. & Caut.

Red Crag. Felixstow.

E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 14, pl. i., fig. 21. (Right lower second molar).

Hyænarctos, Falc. & Caut.

Red Crag. Felixstowe.

E T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 14, pl. i., fig. 22. (Right lower canine).

Squalodon antwerpieusis, V. Ben.
Red Crag. Woodbridge.
E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p. 75, pl. viii., fig. 15. (Side tooth).

Squalodon antwerpiensis, V. Ben.
Red Crag. Woodbridge.
E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv.) 1891, p 75, pl. viii , fig. 16. (Anterior tooth).

Ursus arvernensis, Cr. & Job.
Red Crag. Woodbridge.
E. T. Newton, Vert. Plio. Dep. Brit. (Mem. Geol. Surv). 1891, p. 16, pl. i., fig. 12.
(Left lower second pre-molar.)

H. M. PLATNAUER.

BORINGS MADE IN THE NEIGHBOURHOOD OF YORK.

I am indebted to Mr. W. B. Richardson, of Huby Burn, for particulars of the three borings mentioned below :—

Huby Burn (Farm).

	Ft.	In.
Soil	1	6
Brown Clay	10	0
Plastic Clay	8	0
Solid Blue Clay	4	0
Boulder Clay	12	0
Red Marl with Gypsum seams	31	0
Green Marl		
Grey Sandy Marl		
Red Sandy Clay		
Red Marl		
Red Sandy Marl		
Red Marl with Gypsum		
Green Marl with Gypsum		
Brown Marl with Gypsum		
Red Sandy Marl		
(Boring stopped.)		
Total	66	6

HUBY.

	Ft.	In.
Soil	1	6
Stony Clay	12	0
Clay with Sand partings	12	0
Red Clay with seams of Gypsum ..	80	0
Green marl with thin seams of Sandstone	4	0
(Boring stopped in this bed).		
Total	109	6

NEAR RASKELF STATION.

	Ft.	In.
Sand	0	10
Boulder Clay*	50	0
Shale† with Gypsum	15	0
Red Shales†	41	0
Grey Sandstone	45	0
Blue Shale†	10	0
(Boring stopped in this bed).		
Total	165	10

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* I am inclined to think that not more than half this is undisturbed solid Boulder Clay.

† These "Shales" are probably fissile Marls.

In excavating Love Lane during 1892, it was found that the Boulder Clay was overlaid by fluviatile deposits of from 7ft. to 8ft. in thickness, the overlying soil was from 3ft. to 4ft. thick. Human bones were discovered at 7ft. and again at 11ft. from the surface; there were no remains of coffins found with the bones.

H. M. PLATNAUER.

CATALOGUE OF THE JURASSIC BRYOZOA IN THE YORK MUSEUM.

The rarity of well preserved specimens of British Jurassic Bryozoa renders it necessary to see all available material before an adequate description of this group can be undertaken. The Bryozoa are not forms that can be determined by a hasty examination in a day's visit to a Museum, so that I am especially grateful for the opportunity given me on the kind recommendation of Mr. Platnauer for a careful study of the small but interesting series in the York Museum. The collection includes 31 specimens, of which five are indeterminable; the 26 remaining represent 10 species belonging to six genera. Two specimens are of considerable interest, as they admit of precise description of forms previously inadequately known; these are the type of Phillips' *Cellaria smithi* and a well preserved fragment of the same author's *Millepora straminea.* Four of the species have not been recorded in England; two of the others are new, but will be described later, and are here recorded only; much better material, which admits of a careful anatomical study, is preserved elsewhere. These I hope to describe in a Monograph of the Jurassic Bryozoa; an attempt at a justification of the classification followed, and the acceptance of Ulrich's order *Trepostomata* will then be given.

Order : *Cyclostomata.*
Family : *Stomatoporidae.*
Genus : *Stomatopora.* Bronn ; 1825.
Species : *Stomatopora smithi* (Phillips). Fig. 1.

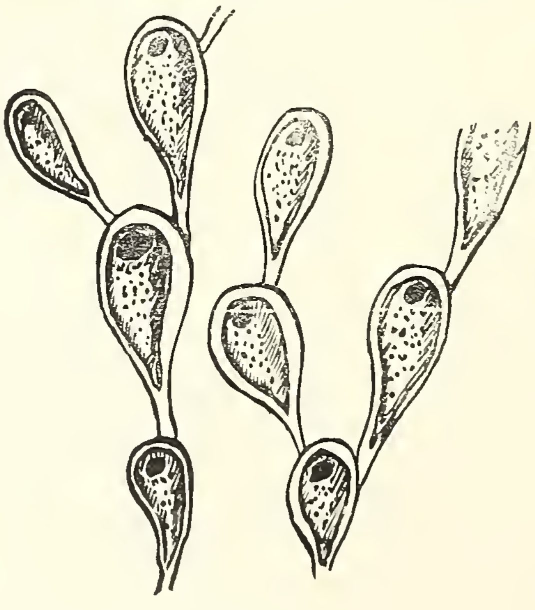

Fig. 1.

SYNONOMY :

Cellaria smithi. Phillips. Geol. Yks. Pt. I., Yks. coast, 1829, p. 143, pl. vii., f. 8.

Hippothoa smithi. Morris. Cat. Brit. Foss., 1843, p. 39.
,, ,, ,, Ed. 2, 1854, p. 125.
,, Haime. Bry. Foss. Jurassique. Mem. Soc. Geol., France. Ser. 2, t. v., 1854, p. 217.
,, Platnauer. List Figured Specimens, York Museum. Ann. Rep. Yk. Phil. Soc., 1891, p. 62.
,, Fox Strangways. Jurassic Rocks of Britain, Vol. II.; Yorkshire Tables of Fossils, p. 148.

Alecto smithi. D'Orbigny. Prod. Pal., 1849, t. i., p. 317.

DIAGNOSIS :

Zoarium hippothoiform: uniserial; branches crowded and irregular; entirely adherent. Zooecia pyriform: long slender proximal ends; front wall well raised, rounded, and punctate; orifice small, circular, surrounded by a low rim. Peristomial area slightly raised; flat regular rims surround each of the zooecia.

DISTRIBUTION :

Adherent to *Cardium citrinoidum.* Cornbrash, near Scarborough. Only the type specimen known.

AFFINITIES :

The species agrees best among Jurassic species of the genus in its pyriform zooecia with *S. dichotomoides* (D'Orb.), but the hippothoiform zoarium and long whip-like proximal portions of the zooecia clearly distinguish it. Owing to the imperfection of Phillips' figures, much uncertainty has existed regarding it; the accompanying figure has therefore been prepared. The front walls are often broken away, giving the specimen a Schizoporellidan aspect.

Family: *Diastoporidae.*

Genus: *Berenicea.* Lamoroux, 1821.

[M. Sauvage (Bry. Juras. Boulogne; Bull. Soc. Geol. France; ser. 3, t. xvii., 1888, p. 43) accepts Roemer's genus *Rosacilla,* as *Berenix* was in use before *Berenicea* was proposed: the two names, however, seem to be quite sufficiently distinct to render the change unnecessary.]

Species 1. *Berenicea diluviana.* Lamouroux,* 1821.

Distribution: Encrusting *Apiocrinus elegans* Defr. Bradford clay, Bradford.

Species 2. *Berenicea striata.* Haime;† 1854.

Distribution: Encrusting *Terebratula plicata.* Inferior Oolite, Leckhampton. Haime's is a Liassic species, but this agrees very closely with his description and figures.

Species 3. *Berenicea allaudi* (Sauvage),‡ 1888.

Distribution: On *Magellania carinata* var. Inferior Oolite. Burton Bradstock.

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*Lamouroux. Exp. Meth. Polypiers, p. 81, pl. 80, f. 3, 4.

†Haime. Mem. Soc. Geol., France; ser. 2, t. v., 1854, p. 179.

‡Sauvage. Bull. Soc. Geol., France; ser. 3, t. xvii., 1888, p. 46, pl. iv., f 1-5.

Genus Terebellaria. Lamouroux, 1821.

Species 1. *Terebellaria ramossissima.* Lamx., 1821.

[Lamouroux, op. cit., p. 84, pl. 82, f. 1.]

Distribution: Bradford clay. Tetbury Road, Wiltshire.

Species 2. *Terebellaria n. sp.*

Distribution: Cornbrash. Draycot and Stanton.

Family: *Entalophoridæ.*

Genus: *Pustulopora.*

Species: *Pustulopora straminea* (Phillips non Haime). Fig. 2.

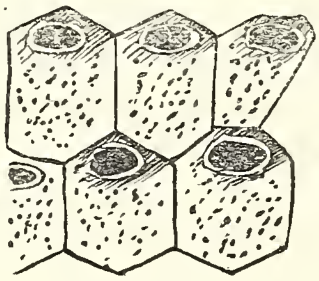

Fig. 2.

SYNONOMY:

Millepora straminea. Phillips. Geol. Yorks. Pt. I. Yorks. Coast, 1829, p. 143, pl. vii., f. 8.

Cricopora straminea. Morris. Cat. Brit. Foss., 1843, p. 34.

Intricaria ,, D'Orbigny. Prod. Pal., 1840, t. i., p. 289.

non *Laterotubigera* ,, ,, Pal. Franc. Terr. Cret., t. v., 1853, p. 715.

Entalophora ,, ,, ,, ,, t. v., p. 779.

non *Spiropora* ,, Haime. Mem. Soc. Geol. France. Ser. 2, t. v., p. 196, pl. ix., f. 6.

,, ,, Vine. Rep. Brit. Assoc., 1882, p. 262.

DIAGNOSIS :

Zoarium erect, cylindrical, dichotomously branched. Zooecia in regular, circular, closely adjoining series. Usually hexagonal and bisymmetrical, but variations in growth pressure render some irregularly polygonal. Orifice transversely elliptical. Peristomial area slightly raised. Front wall punctate.

DISTRIBUTION :

Millepore limestone, Bathonian ; Gristhorpe, Lyon's Nab.

Fig. 2 shows how different this species is from that which Haime has referred to it.

Species 2. *Pustulopora sp.*

A massive thick form with only the internal structure shewn. The front wall and orifice destroyed. It is, therefore, indeterminable. It comes from the Millepore Oolite, Westow.

Another indeterminable species of *Pustulopora* is of interest, as it comes from the corallian of Mount Pleasant quarry.

Order. *Trepostomata.*
Family. *Cerioporidæ.*
Genus. *Ceriopora.* Blainville, 1834.
Species. *Ceriopora globosa.* Michelin.
[*Iconographie Zoophytologique*, p. 246, pl. 57, f. 49.]
Distribution : Inferior Oolite. Ravensgate Hill.

Family : *Heteroporidæ.*
Genus : *Heteropora.* Blainville, 1834.
Species 1 : *Heteropora ficulina.* Michelin.
[Op. cit., p. 244, pl. 57, f. 2.]

Distribution : Inferior Oolite. Birdlip Hill.

Species 2. *Heteropora n. sp.*

Distribution : Pea grit ; Inferior Oolite. Crickley.

J. W. GREGORY.

Pres^d.

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